

NAIRA a tool to automatic mammals genera identification in Camera Trapping Pictures

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¿What to do?

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- Assisted construction of databases
(Darwin Core Format)
- Automatic wildlife detection
- Automatic classification: Birds / Mammals
- Automatic identification of mammal genera

¿Which genera?

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Didelphimorphia

Didelphidae

Didelphis

Cingulata

Dasypodidae

Dasypus

Pilosa

Myrmecophagidae

Tamandua

Artiodactyla

Cervidae

Mazama

Tayassuidae

Pecari

Carnivora

Canidae

Cerdocyon

Felidae

Leopardus

Panthera

Puma

Mephitidae

Conepatus

Mustelidae

Eira

Procyonidae

Nasua

Nasuella

Potos

Procyon

Rodentia

Caviidae

Hydrochoerus

Cuniculidae

Cuniculus

Dasyproctidae

Dasyprocta

Echimyidae

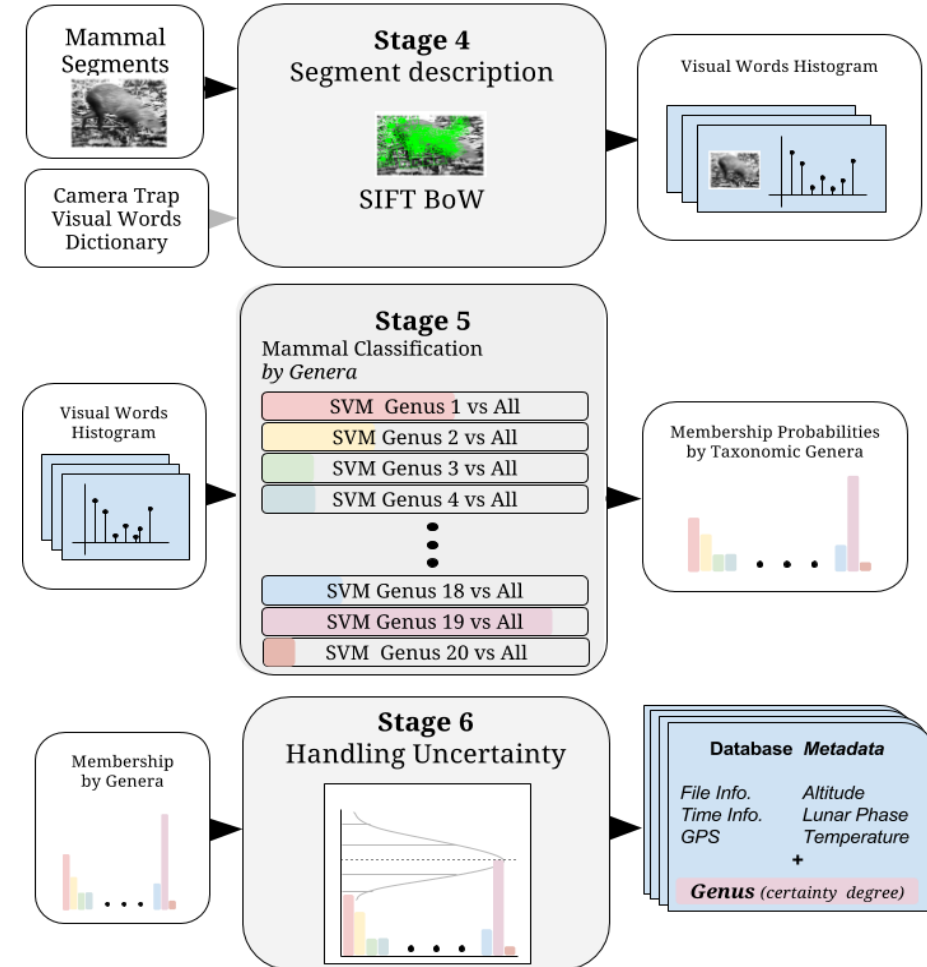
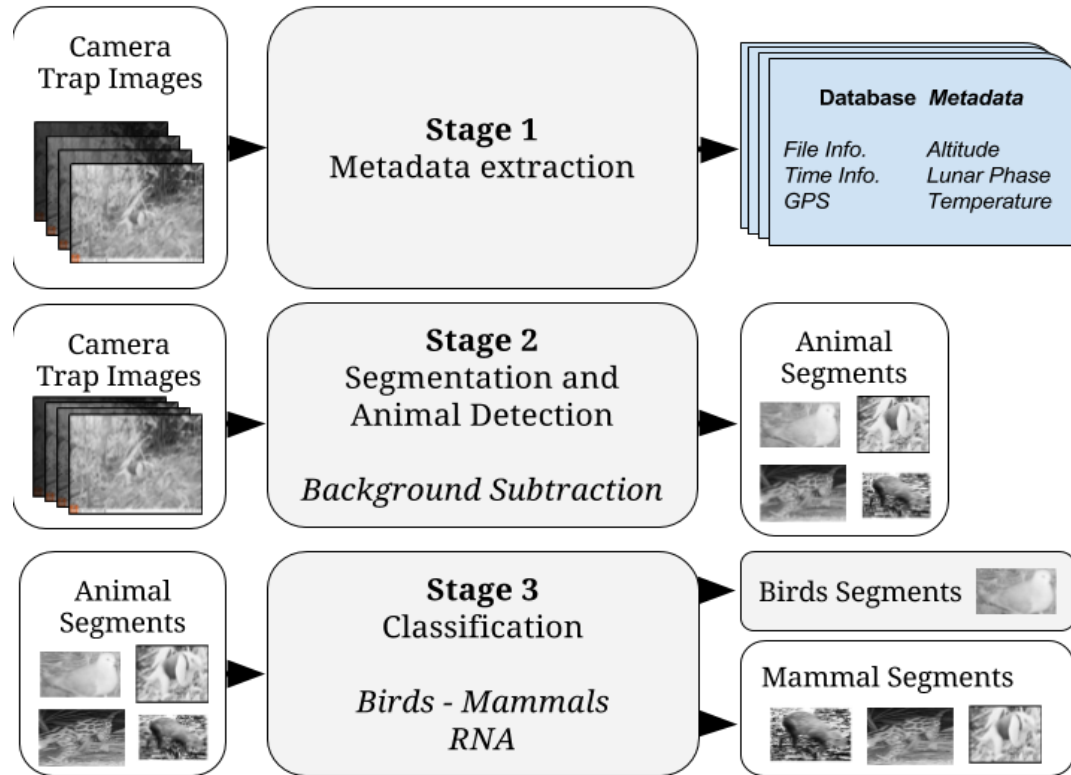
Proechimys

Lagomorpha

Leporidae

Sylvilagus

¿How?



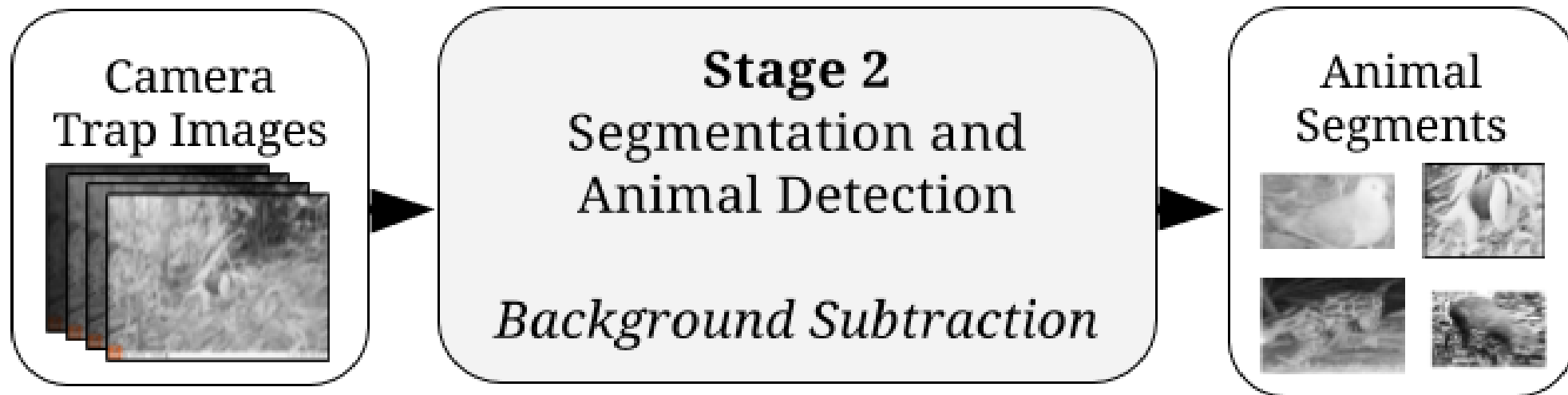
Stage 1

Metadata extraction



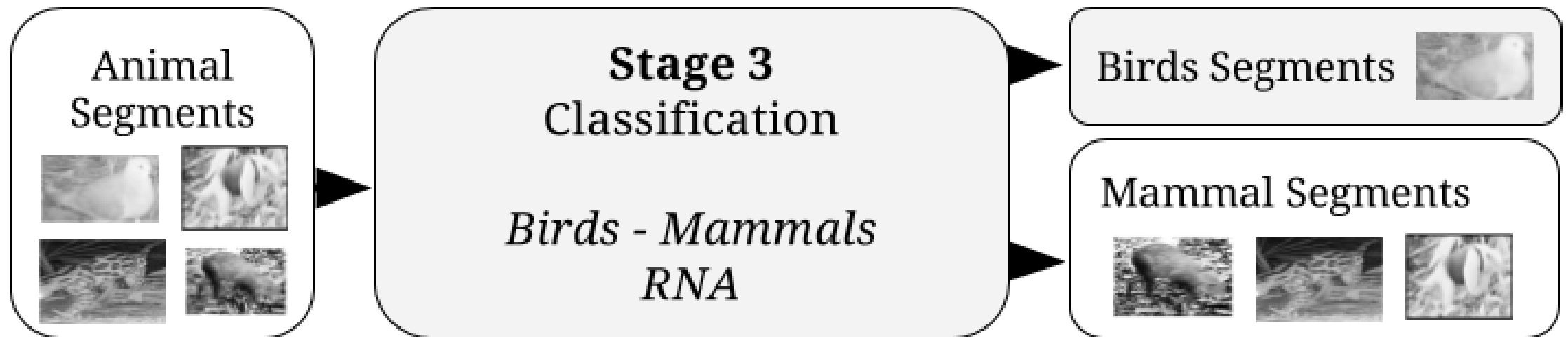
Stage 2

Segmentation and Animal Detection



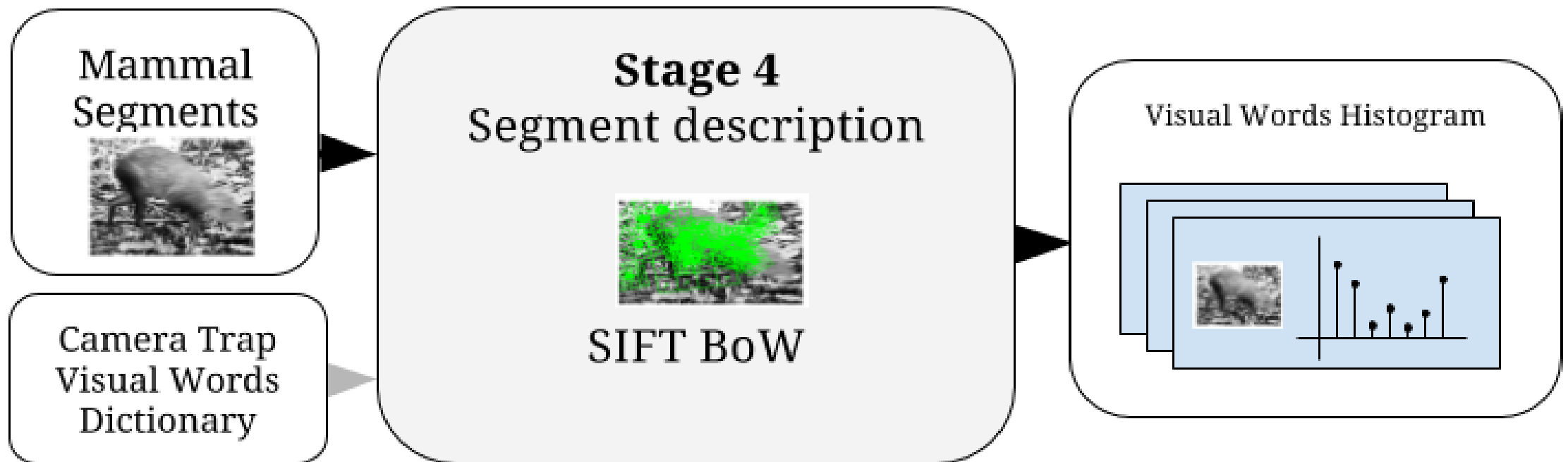
Stage 3

Birds – Mammals Classification



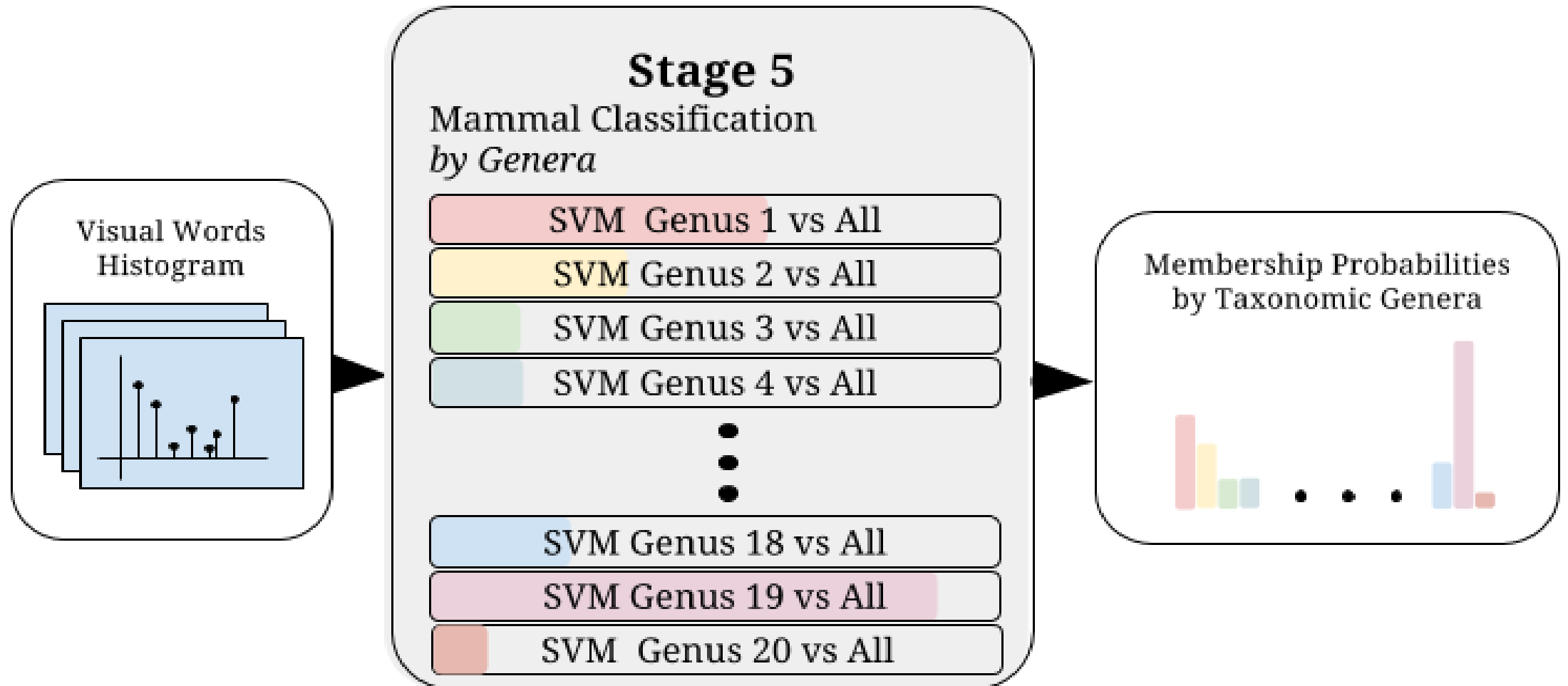
Stage 4

Segment description



Stage 5

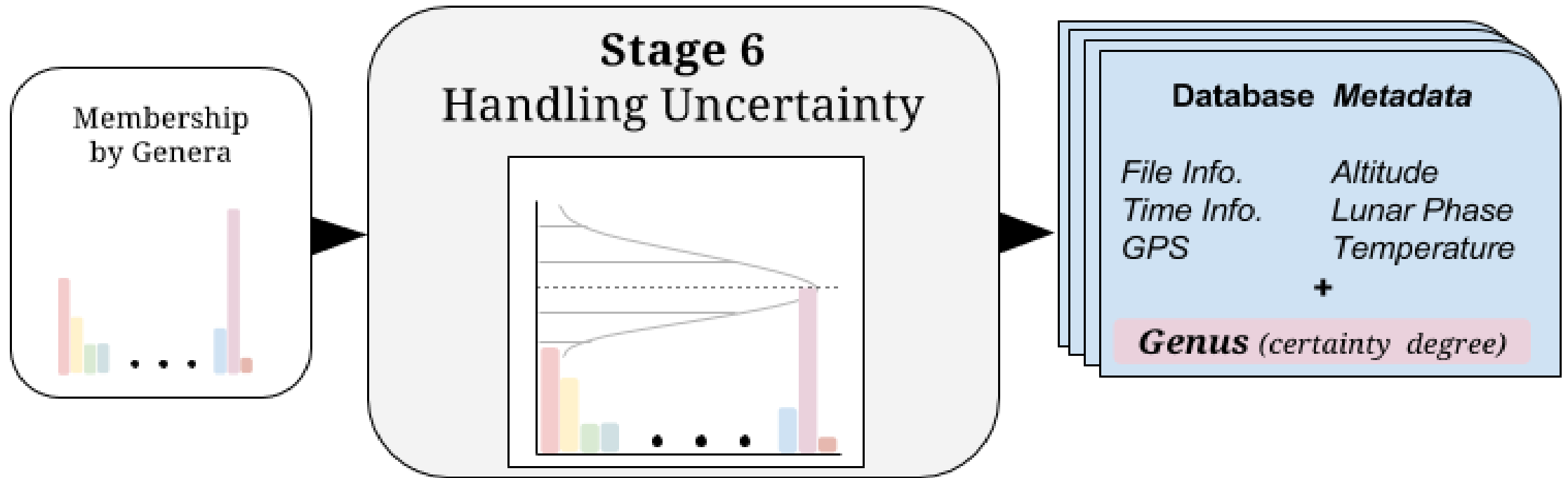
Mammal Classification



Stage 6

Uncertainty Analysis

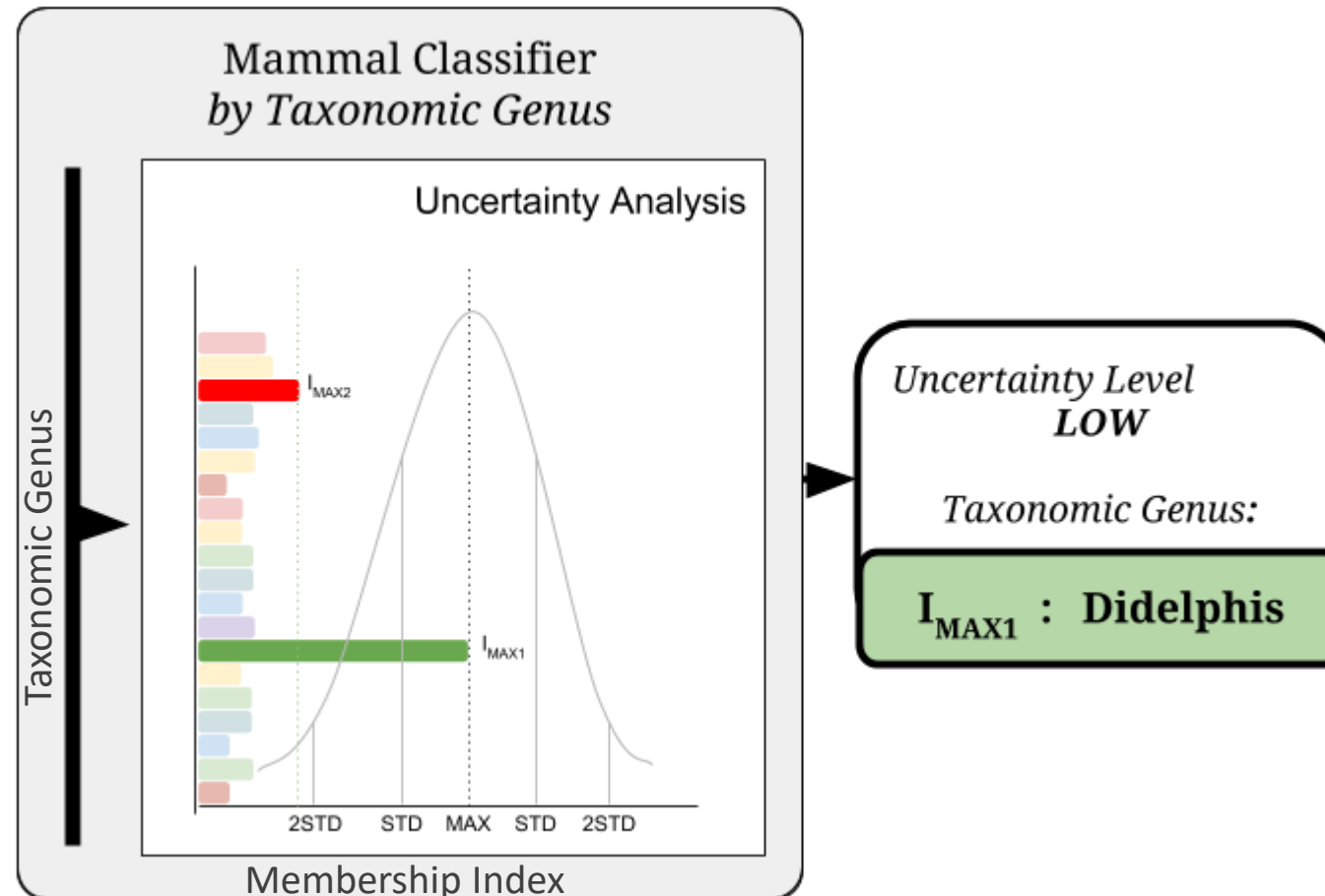
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Stage 6

Low Uncertainty

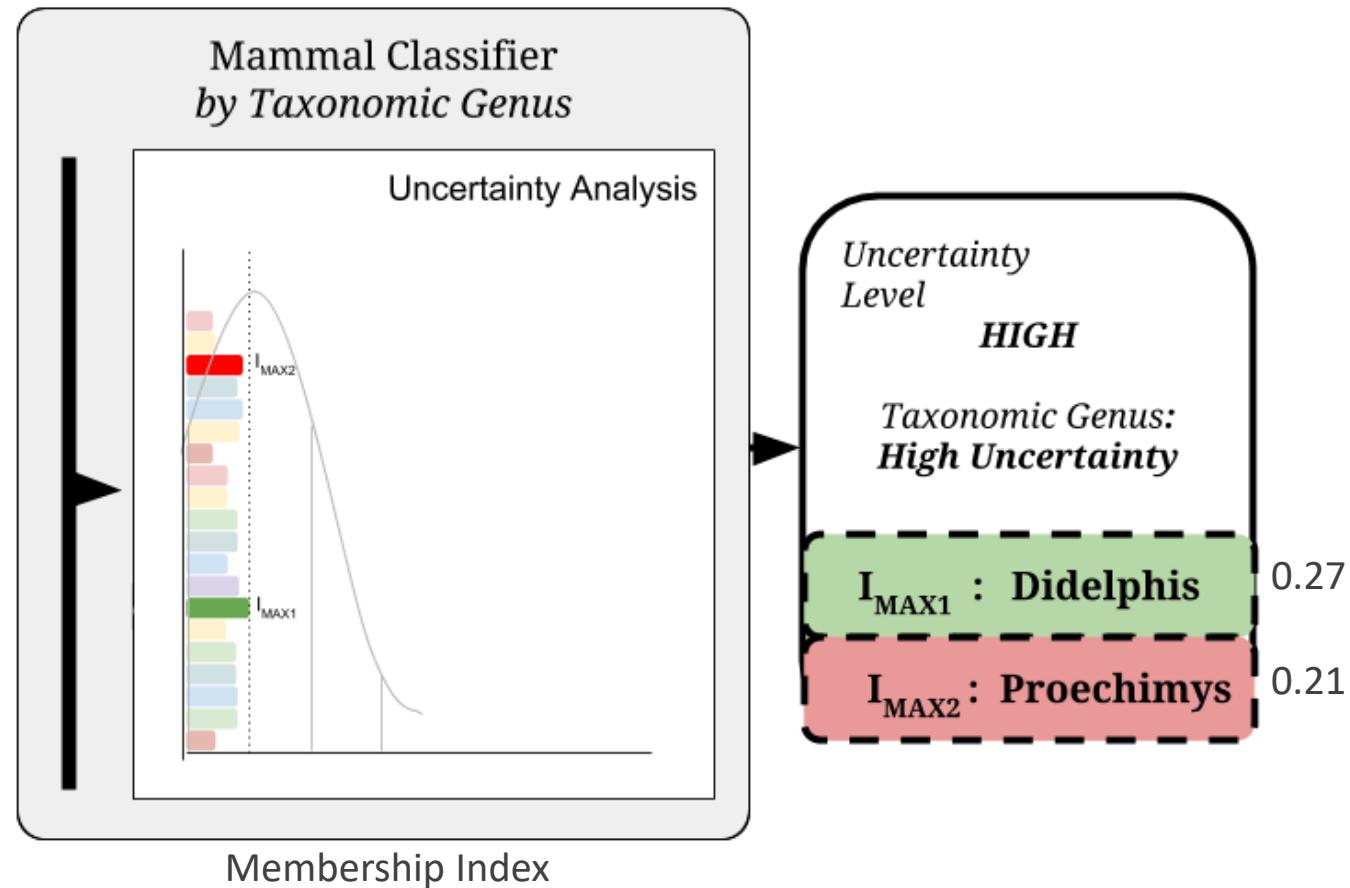
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Stage 6

High Uncertainty

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Validation

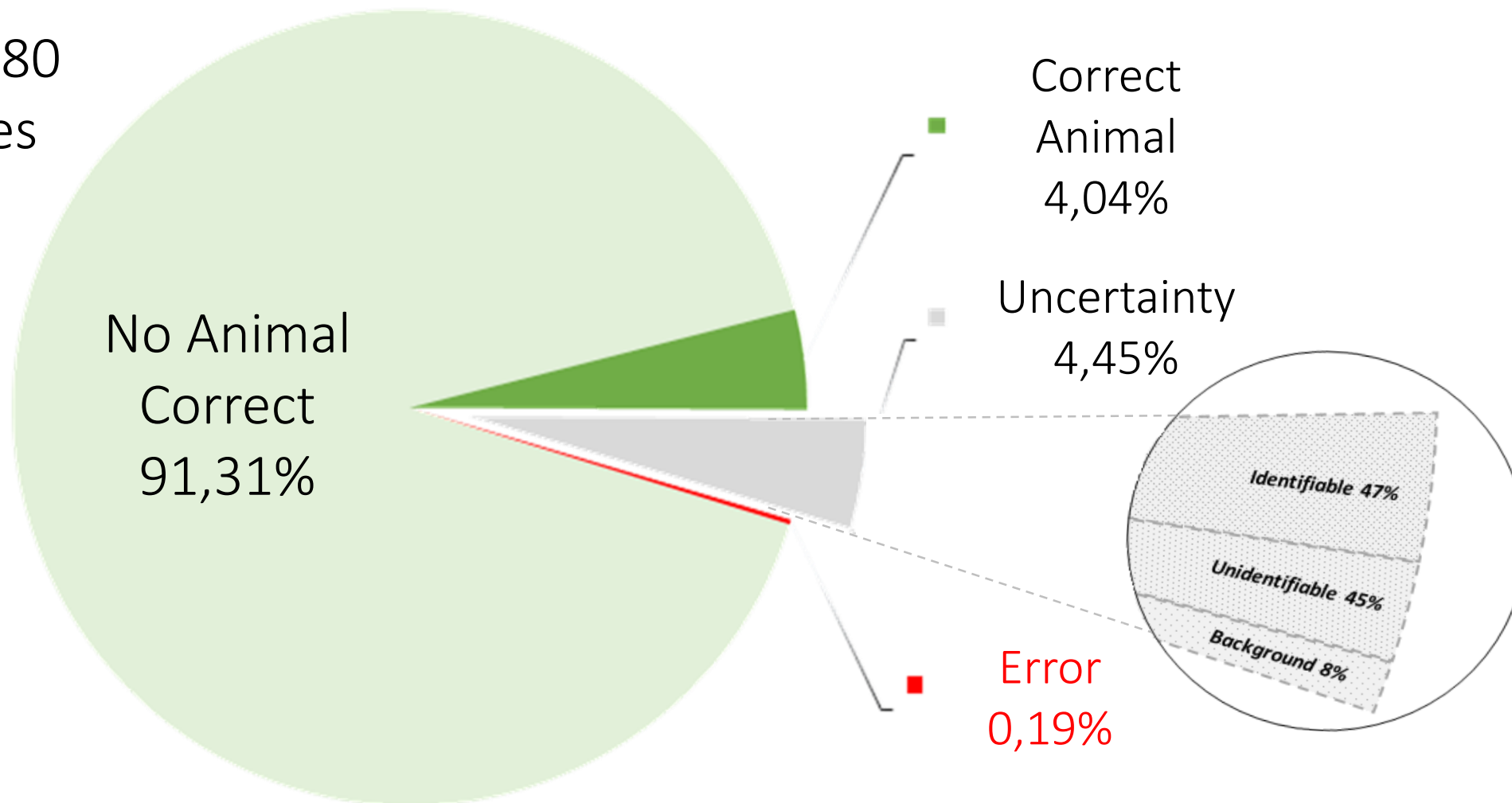
New Set of Pictures

- Final validation process
- 70.780 Pictures
- Manually Labeled dataset by IAvH experts.

Performance

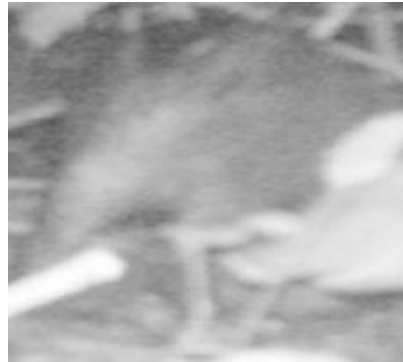
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n = 70780
pictures

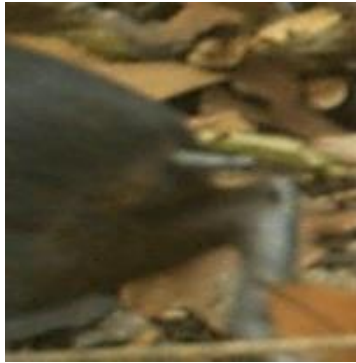
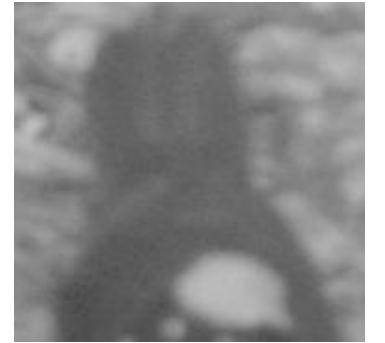


Error Analysis -causes

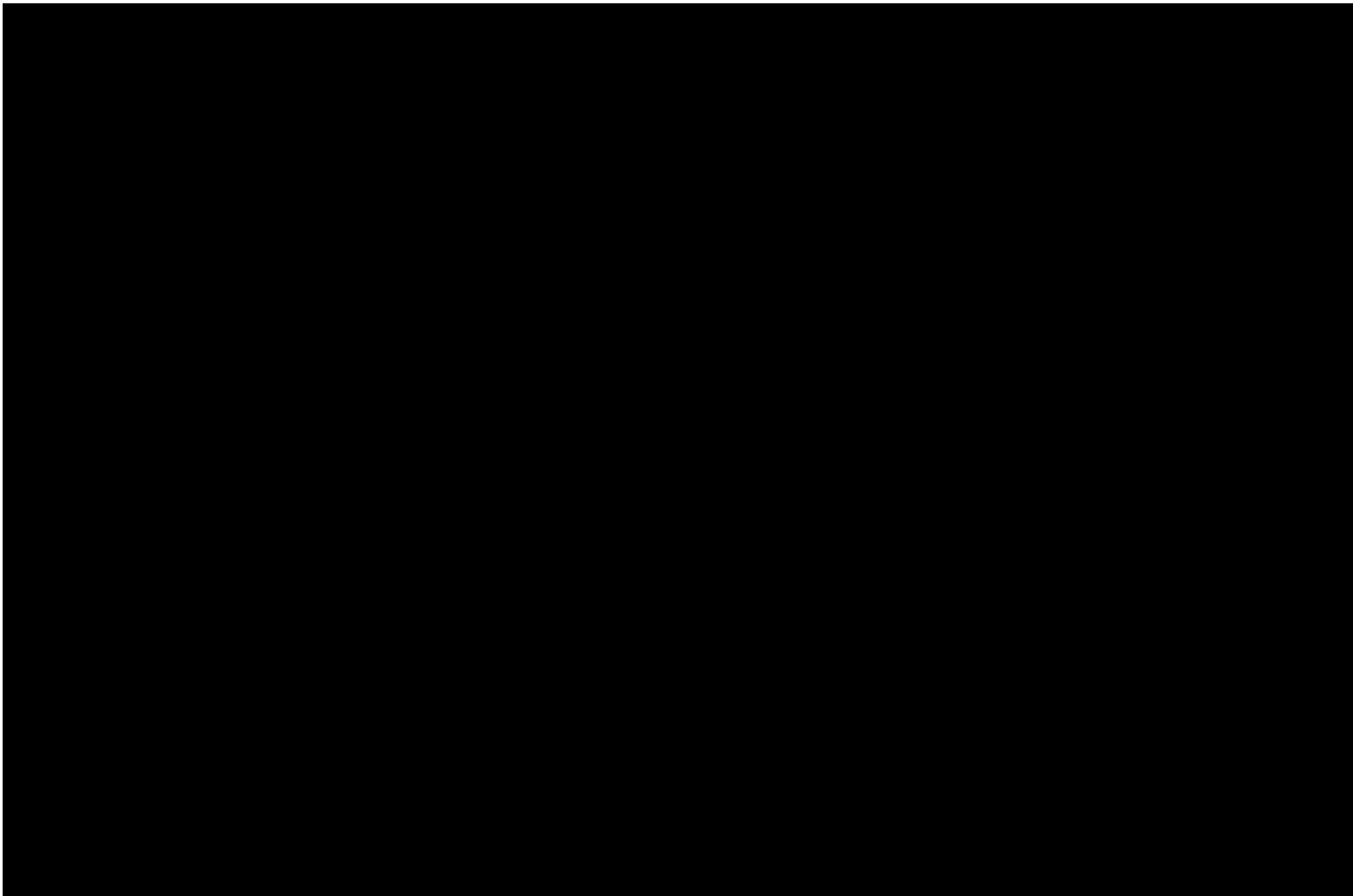
64%
Partial or Occluded



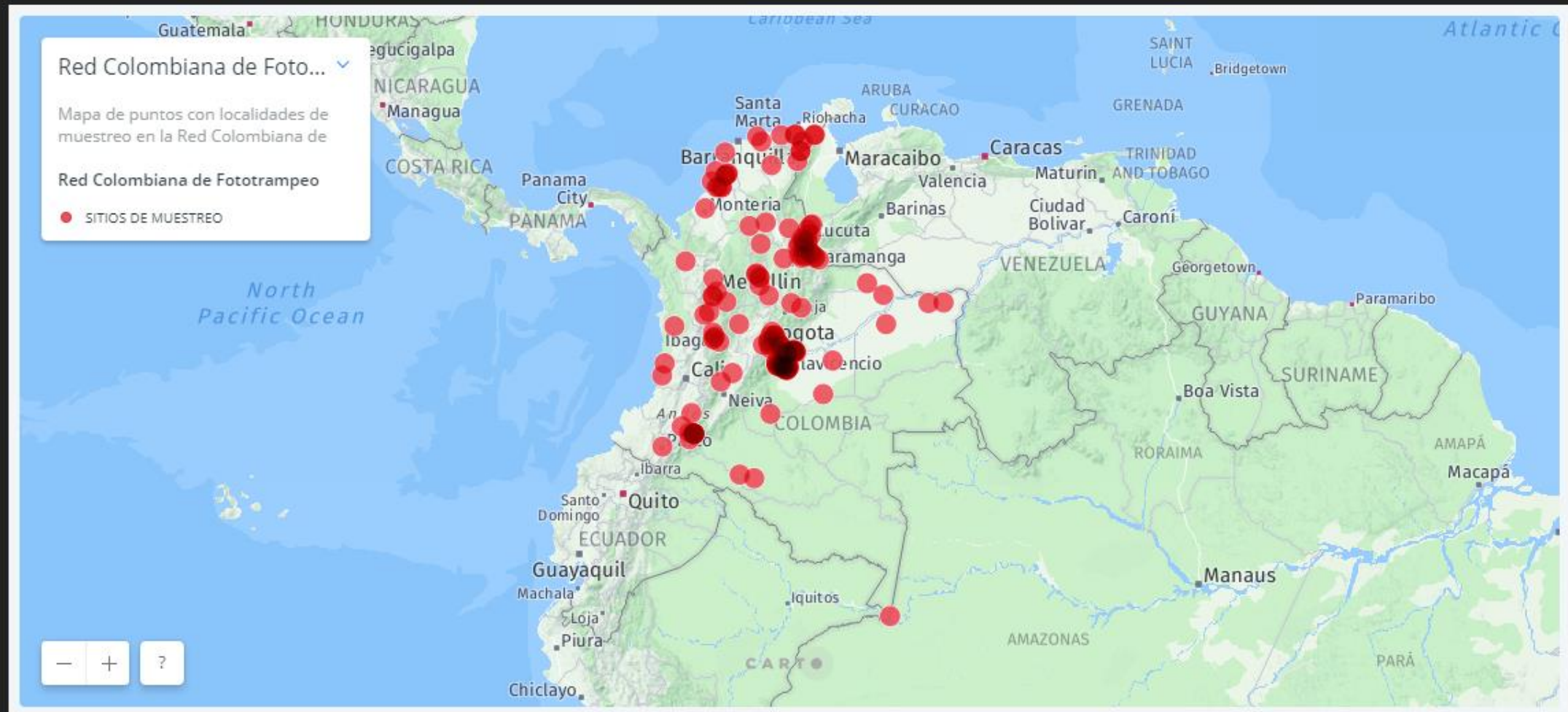
27%
Low resolution



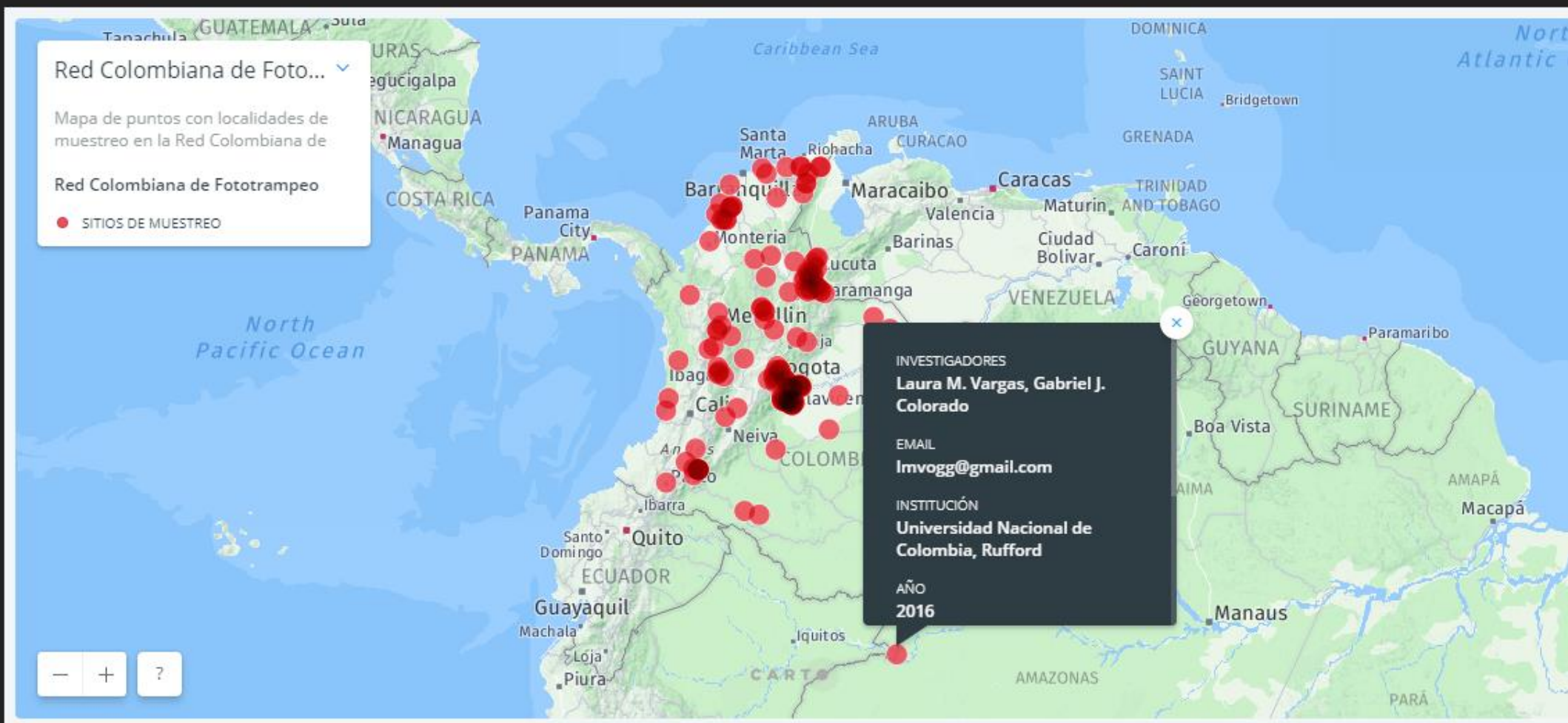
9% Algorithm error



Dónde hay datos y quién los tomó



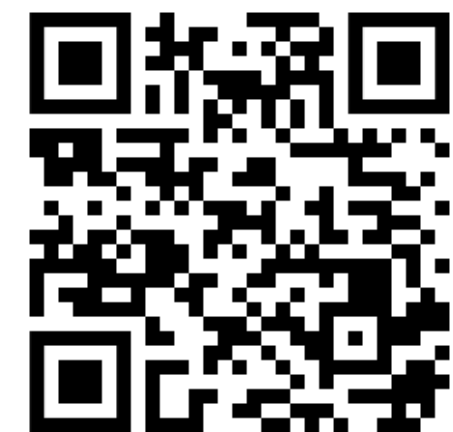
Dónde hay datos y quién los tomó



RED COLOMBIANA DE FOTOTRAMPEO

Una herramienta para conectar a quienes muestrean vertebrados terrestres en Colombia

ENCUENTRA MÁS DETALLES



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Future Work

Contextual Information



Future Work

Contextual Information



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